Stages of Economic Development

(transcript)

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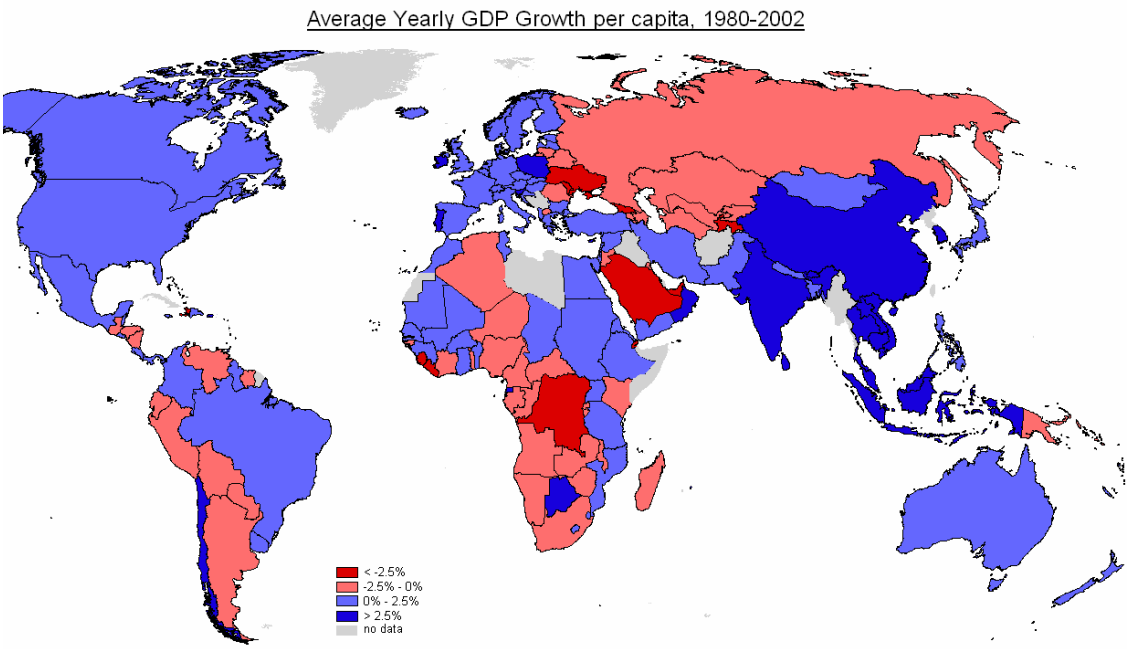
I want to talk this afternoon about problems of economic development and the special problems of extreme poverty, and relate them to the international issues, as well as to China's development problems. Development economists try to understand why some parts of the world remain stuck in extreme poverty, why others grow out of extreme poverty but get stuck at certain levels, and why others achieve sustained growth.

I'll begin by briefly describing some of the varying economic performances that we have seen in the world economy between 1980 and 2002 (see map). First, the countries that were already rich as of 1980 all enjoyed economic growth, usually at a rate of between 1% and 3% per year in per capita terms. The United States grew at about 2% per year in per capita terms. Most of Europe grew at a similar rate.



For the countries that were not already developed economies, performances varied tremendously. China has been the fastest-growing major economy in the world over the

last two decades, with per capita growth of about 8%. Africa, on the other hand, was the poorest part of world in 1980 and remains the poorest part of the world today. The continent is truly in a poverty trap: it is extremely poor and average income actually declined over the 1980-2002 period. Of course, there were some differences within Africa: of the 48 countries in sub-Saharan Africa, some had positive growth while many had negative growth.

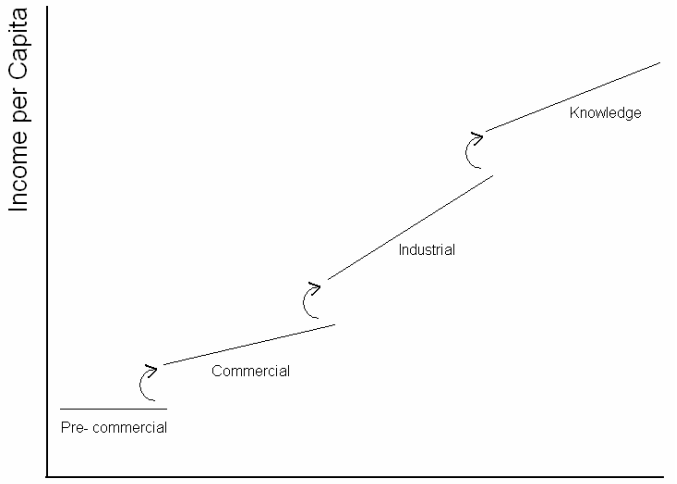
Meanwhile, Latin America consists of countries that are not so poor—they are already in many cases richer than China is today–but they have experienced very little economic growth on average since 1980. Mexico, Brazil, and Argentina, the biggest economies, had very small amounts of average yearly growth since 1980, ranging from negative growth to 0.6% growth, with a lot of crises, shocks, and collapses. There were also the transition economies of Eastern Europe and the former Soviet Union, which generally had a very short period of decline in the early 1990s and then a period of growth since the mid-1990s. Those economies were undergoing a very big transformation from industry to services. Then there was South Asia, which achieved high economic growth rates, though those rates were not as high as China's. India achieved average per capita growth of 3.5% per year. Since the mid-1990s, it has been growing a little bit faster, at rates near 5% per year. Meanwhile, countries of Southeast Asia—like Malaysia and Indonesia—had quite rapid economic growth rates of 4% or so per capita over the period, and even faster rates of nearly 7% in the early 1990s. Notably, South Korea had an impressive average yearly growth rate of 5.9% between 1980 and 2002.

The science of economics challenges itself to understand these phenomena without trying to oversimplify them. We should have economic theories that summarize and explain this diversity. However, our theories cannot be so simple or artificial that one believes that there is a single explanation for these different economic outcomes. In fact, the complexity of social systems and variation across countries' and regions' economic performance means that they cannot be explained by a single, simple theory.

One can think of some key stages in economic development, at which some countries can get stuck. Some countries stop at very low levels, other countries stop at higher levels, and other countries achieve continuing economic growth. While this is a bit oversimplified, I think it is helpful for me to distinguish between what is happening in Africa, what is happening in the poor and rich countries of South America, and what is happening in China. We should also consider the large differences between coastal China and western China. Good development theory should explain differences within countries, not just differences across countries.

I consider three transformations that economies go through as countries move from extreme poverty to wealth. These three different transformations involve a re-structuring of the economy at different levels of development, and pose different challenges for economic policy and strategy. The three stages are the commercial stage, the industrial stage, and the

knowledge-based stage. Economies can get trapped at each of those steps of development, either at a pre-commercial level of development, a pre-industrial level, or a pre-knowledge level of development. The countries with highest income are all now knowledge economies; they very much driven by innovation, which is in turn driven by a high input of science and technology. The poorest countries, however, are dealing with very different challenges. The diagram below is a crude attempt at graphically showing what I will describe. The four stages of an economy are: pre-commercial, commercial, industrial, and knowledge. Between each stage, there is a transition, which some countries can have tremendous difficulty in overcoming.[1]



I define a commercial economy as one with basic division of labor between urban and rural activities, where the urban sector produces manufactured goods and services and the rural sector produces food and other agricultural products. The urban and rural sectors are integrated and trading with each other. This is a pretty basic level of economic organization, but there are economies that are pre-commercial in the sense that the agriculture sector is not sufficiently integrated with the urban economy. In this sense, most African countries are pre-commercial, because the rural economy is so isolated from the urban economy that there are no economies of scale and little exchange between the rural and urban areas. In many places where I am engaged in rural Africa, the farm households in the rural sector live pretty much in economic isolation. There are no roads to the villages, and there is no electricity. The farmers do not sell crops to the cities. They eat most of the food they produce, and commercial activity in the village is very low. Furthermore, they don't buy many inputs from the urban centers. For example, most African food producers are trapped: they do not use fertilizer because they can't afford it, which means that they don't have enough of a crop surplus to sell to the cities, which in turn means that they cannot buy fertilizer. In these circumstances, productivity is extremely low in the rural areas. The farmers are producing

[1] These four stages should not be taken as necessarily occurring chronologically. As we shall see, some countries have skipped stages, while others exist in several stages simultaneously with varying economic structure within the country.

almost without any technological inputs, further decreasing their yields. Moreover, poor tropical countries are hurt by the tropical climate; with one wet season and one dry season, and often a very short growing season, food production per capita is lower. Farmers in pre-commercial economies are living at subsistence. There is a lot of disease and hunger. Moreover, they are burdened by the high population growth that occurs in the poorest societies. As the community's population continues to expand，farm sizes continue to shrink because property is divided among sons by each passing generation. Water becomes scarcer. As communities look for new land to farm or water to drink, they cut down forests and bring about a deterioration of the environment. This is a very sharp economic poverty trap at a pre-commercial level. Of course, this is a little bit of an exaggeration, because there *is* some trade between the urban and rural area: people from the rural areas in Africa migrate to the cities, and they send income home. However, that connection is not enough to pull the rural sector out of extreme poverty.

Meanwhile, the urban sectors of pre-commercial economies, especially in Africa, tend to be very small and also unproductive. For example, before 1950, there was not one single city in sub-Saharan Africa with a population greater than one million. These small cities are unattractive places in which to invest, because of which they usually do not become rich and in turn cannot invest in the surrounding hinterlands. They are quite disconnected from the economy of the rural sector, except for the immediate area around cities which produce vegetables and some animal products that are traded in the cities. The more distant places are truly economically isolated. This is one way in which economies become stuck at such a low level of development. In my view, geography plays a large role in this, because most of the pre-commercial rural areas are far in the interior of Africa. They may be hundreds or even thousands of kilometers in the interior. Generally, the roads are very bad, or they don't exist at all. Many communities are living in mountainous areas which are economically isolated. In many cases, these rural areas suffer from very extreme problems of disease—especially malaria, in Africa's case—further reducing productivity levels. The fertility rates are very high as families try to compensate for the high death rate of their children. Such circumstances exacerbate the isolation of such interior areas. The fact is that on their own, the markets in the early stages of economic development will not naturally link the rural areas with the urban areas.

Most economies of the world are not in such extreme difficulty; most have basic division of labor, urban and rural sectors trading with each other, and farmers producing enough food to feed themselves and sell to the cities in return for clothing, fertilizer and other inputs. Most economies reach this commercial level.

The next step of successful development after the commercial level is industrialization: moving from the primary commodity and small urban sector to

manufactured goods.[2] Many countries become stuck producing only primary commodities, without successfully industrializing. In my opinion, the key to successful industrialization has been international trade, because if industrialization is just based on the local market, it can develop only to a certain scale, but it will remain small and inefficient. For the scale and technological advances that industrialization requires, international trade has been extremely important. One of the reasons that commercial economies have not been able to industrialize is the poor economic policy choice to close the economy. I think this was one of the reasons why much of South America suffered for a long time. There were modest levels of industrialization, but they led to small and inefficient domestic industries that were not international or competitive, due to the economic policies that were pursued. However, there are other reasons why industrialization does not succeed. Once again, geography can play an important role. In Asia, it is very hard for countries that are far from markets—especially landlocked regions in Central Asia—to attract competitive industry. Similarly, in Latin America, most of the countries, all the way from Mexico, through Central America, and down through the southern end of the continent, that lay in the mountains have enjoyed very little successful industrialization, and transfer costs remain very high. These countries have a very difficult time attracting international investment in the industrial sector. That is been true even in Chile, the most successful economy of Latin America in recent years, where development remains largely based on primary commodities, such as copper and other mining products, which have been a huge factor in Chile's growth in the last 25 years. Chile also exports high-value agricultural products, such as foods and vegetables for the U.S. market, but it exports few industrial products, and it still has a very small industrial base. It will be difficult for Chile to become an industrial economy, and will probably be more successful if it moves directly into high technology services.

This brings me to the next transition: from an industrial economy to a knowledge economy. Two good examples of how a country can have trouble with this transition are Brazil and Mexico, which have experienced very little economic growth for 25 years. A very interesting comparison can be made between Korea and Brazil (even tough those economies are of very different sizes). In the mid 1970s, they were almost at the same level in most aspects of their degrees of industrialization and their per capita income levels. Then Brazil became stagnant in its development for 20 years, with political, social, and financial crises, while Korea continues to grow quite well, despite one bad crisis in 1997-1998. In my opinion, the main difference between those two cases is the third transition from an industrial to a knowledge-based economy. I think this is the essence of the difference between these two countries. Hong Kong is a somewhat different case, because it is a very special trading city. But for Korea and Taiwan, which were previously at very similar levels to Mexico and Brazil, their path is really different. There are many

[2] During most of this discussion, I will be referring only to countries with populations larger than a few million. Small countries tend to follow different, idiosyncratic paths, very particular to their geography and other characteristics.

debates about why that is the case, but in my opinion, the most important difference is that Korea and Taiwan invested in science and technology and had an active industrial policy. Brazil and Mexico did not. Korea and Taiwan were certainly free market-based – they were using the private sector and international market forces very strongly – but their governments also heavily promoted technology. Promotion came in many ways: significant government spending on national research laboratories, on establishing science institutions, on promoting higher education in engineering and science, in giving aggressive tax promotions to attract investors, and in trying to attract leading scientists from the United States. Although there were other differences, science and industrial policy was the most important in my opinion. During my visits to Asia over the last 20 years, I have noticed the frequent discussions about what "the next technological step" will be, especially in Taiwan and Korea. However, when I visited Latin America, the discussions were about other things, and only very recently have they begun focusing on science, technology, and higher education.

This is the third step of the transition. After a country becomes a successful science and innovation economy, having gone through with industrialization, internationalization, and investments in science, per capita incomes have risen to around $15,000.[3] There are very few cases of countries that reach that level and then stop developing. Almost all of the countries at that level have pretty steady economic growth, despite some shocks in business cycles, and even those do not cause 20 years of stagnation. Such countries have sustained, dynamic growth, with continual expanding markets, rising productivity, and innovation.

So in what stages are China and India? Although the reality is lot more complicated than the simple illustration I just gave, I believe China is currently in the transition from industrial to knowledge-based development. However, my description of economic development should not really be thought of literally as a sequence, although it is helpful to think of how challenges vary at different stages. Development transitions can all take place simultaneously within the same country, and China is too large to for the entire country to be at just one level of development. Many things are taking place simultaneously: while there are probably still some pre-commercial villages largely disconnected from markets, elsewhere there is a great deal of industrialization, while in other places technological innovation is happening. Since 1949, rural China has for the most part broken free from economic isolation thanks to investments in basic infrastructure, development of a road system, basic disease control, lower fertility rates, increasing literacy, and so on. Even in the pre-reform period in China from 1949 to 1978, the pre-commercial phase was broken not in the market system, but through the planned system. There was a great deal of economic development that occurred between 1949 and 1978 that laid the foundation for subsequent industrialization, such as increased life expectancy and improved literacy. Nevertheless, the pre-1979 industrialization was very inefficient and could not have been sustained without

[3] All income per capita figures refer to 2002 dollars adjusted for purchasing power parity.

a major change of national strategy. Fortunately, that happened with the end of the pre-commercial period. In the early 1980s, rural households were given responsibility over their land, and the Chinese economy began to open. From the outset, the development of the previous decades had created a significant division of labor between rural and urban areas, thus facilitating 20 years of rapid industrial development.

This industrial development was overwhelmingly based on trade. The opening of the economy was the single most important step in China's very fast growth, because China became an important industrial exporter within a 20 year period. Manufacturing exports rose from a few billion dollars in 1980, out of only about $20 billion of total exports, to manufacturing exports of about $300 billion in 2003. That is phenomenal industrialization, based on strong exports, good investment, technology imports, and a great deal of domestic labor. Of course, like all export-oriented industrialization, it was geographically concentrated on the coasts, so the rapid development in China started in the coasts. Meanwhile, the interior of China was also growing quite very rapidly by international standards. Yet whereas per-capita income in the coasts was growing as fast as 11% per year, the rural interior grew more slowly at around 8% per year. An export industry naturally thrives in the coastal provinces. The interior is growing quickly not only because of the large market base, but also due to the large transfer of resources from the coasts to the interior through the public sector (government investments and support of the banking system in the interior), as well as the migration of more than 100 million workers urban, coastal provinces send some of their income back to rural areas throughout China.

It is better to be an interior province of a coastal country than an interior country that is landlocked in the middle of the continent. The forces that take coastal growth and transition to the interior are much weaker in a landlocked country than in a landlocked province within a big country, because coastal countries usually do not invest in landlocked countries in the same ways that they invest in their own interior provinces. In some cases, political rivalries may even lead the coastal country to suppress the development of a neighboring, landlocked country. Furthermore, within a single country, the government usually directs some of the income from the coast to the interior by means of the national infrastructure. This explains how a lot of American interior states were able to develop, despite the coastal states being richer. In the United States, the national highway system helped, just as it will in China's western development program. Additionally, people can migrate more easily between coastal and landlocked provinces than they can between a coastal and a landlocked country. Right now, a mass migration is taking place from the interior to the coast of China, similar (though not as large) as what happened in the United States. Roughly a hundred years ago, a significant proportion of the American population lived in the interior of the United States, laboring in agriculture. However, when the farms became so productive that 2% of the population could feed the whole country, much of the urban population of interior cities migrated to the more productive coastal cities.

China's industrial development resembles activities in neighboring countries, such as in South Korea, 20 or 30 years ago. China is investing in science, technology, and higher education. I think this is very important and will be a notable feature of China's development. In addition, the international business arriving in China is also investing in science and technology, not just in industrial production. Moving to the knowledge economy will be the critical next phase of China's continuing economic growth. Developing an effective science and technology system for a market-based economy is a very tricky thing, because it involves a range of institutions. The country needs a very active private sector actively taking part in innovation. But a country also needs a significant non-private sector: both state laboratories and state science institutions. In the United States, we have a big non-profit, non-state sector of academic institutions, which are neither state-owned, nor private sector, but are instead independent institutions. They are a very effective and important part of a knowledge-based economy, and something that I hope China will also develop. In pre-reform China and pre-reform Russia, the central planning system could develop great science. Yet it couldn't effectively develop the sort of science that leads to economic development, because most of the science developed in the pre-reform era was in a stage of scientific advancement that did not lend itself to commercial applications, and it did not lead to the diffusion of modern technologies into productive sectors. The Soviet Union and pre-reform China had great physicists, and a lot of great science, but very little commercial innovation. Only recently has that kind of innovation-based market activity started at a large scale, but I think it is really going to take off.

Let me briefly say a few words about India. India is about 15 years behind China in its reforms, but I think the same process is very much underway right now. India is undergoing very rapid economic growth, with a wide range of activity going on beginning in very poor villages to modern industry to high technology. India has a billion people, and this is a diverse phenomenon. It also has incredible geographic diversity—not on an east-west gradient, as in China, but on a north–south gradient. India's coastal trade-based economies are located further south, and are leading the Indian economy. Bombay is like Shanghai in that sense. It is an industrial power right on the coast. India's export growth has been occurring more in the service sector than in the manufacturing sector. India has surpassed China in the information technology sector, while China continues to lead India in manufacturing-based exports. These are probably just accidents of history. India's advantage over China in information technology might result from the English language required for software writing and outsourcing. India's relative delay in opening its economy probably also helped China receive the lion's share of investments in manufacturing in the 1980s and early 1990s in manufacturing (China received roughly $50 billion in net foreign direct investment in 2002, while India received only $3 billion). I think both economies will likely complete transitions through these various stages of commercial, industrial, and knowledge-based development.

This was a brief summary of how I would describe the puzzle of diverse economic

performance in different parts of the world.

Thank you very much!

QUESTIONS

Question 1: What should a country do when it faces geographic difficulties?

Answer: For the poor countries in very difficult areas of Africa, Central Asia, and South America, I believe the problems are so big that the countries need not only their own good strategies, but also international help. They need other countries to provide them with the same kind of the help that the Chinese government provides for western China. Someone has to help to build roads (especially to the nearest port), the power system, and the basic infrastructure so that these countries can have the benefit of development. This is not an easy thing to bring about, because most countries don't care very much about other countries' development. Simply having a good strategy is not enough for many countries in Africa. They need investment, and markets won't bring it by themselves. It should come through assistance until countries achieve sustainable growth. I've worked in many places, and I've gotten to know their governments quite well. I worked in landlocked countries with good governments and coastal countries with very corrupt and bad governments, but the coastal countries always grow faster because they received investment. So, unlike many of my economist colleagues, I don't think it's entirely a matter of policy choices. My advice to these countries is to try to make a detailed diagnosis in terms of geographic problems of transition from pre-commercial, to industrial and knowledge-based economies, and to try to understand what barriers exist. If the barriers are merely the country's economic policy, then it is that country's responsibility to overcome them. But if the barriers are malaria, mountains, and a landlocked location, then the country probably needs help to build roads, to enhance regional cooperation, and to fight disease. And these nations ought to make good diagnoses of how many barriers stem from politics, how many result from social conditions, and how many are due to geographic conditions.

Question 2: If Africa is currently in a pre-commercial stage, will it be necessary for Africa to experience a period of industry before reaching a state of high-technology? Is internationalization the best way to solve the problem?

Answer: I think there are reasons to believe the poorest countries will start in agriculture and will make a transition to urbanization and growth of industry. However, countries like China and India have done this while simultaneously beginning the transition to a knowledge economy with investments in education, science, and technology. Fifteen years ago, we would not have expected that India would become a dynamic center of information technology. In fact, 30 years ago, the international community and the World Bank recommended that India simply invest in primary education and not yet worry about

university education, so it was envisioned as a step-by-step process. However, neither India nor China followed that course too closely, and both invested in primary and higher education at the same time. In Africa, there needs to be more investment in science right now to solve some of the key problems. The low productivity of farming, as well as public health issues, can only partly be solved with the technology that we have, but these problems also require new technology because of Africa's unique ecology. This is another consequence of the poverty trap—African universities are poorly-funded and can support very few scientists. When African scientists reach the research stage, they often move to the United States or another country. I am asking for the international community to provide more resources to help promote science, because science can solve some of these problems. Africa will probably not be haven for heavy industry. The industrial path taken will more likely center on light industry, although it is unclear if African light industry can compete with Chinese producers. Nevertheless, African industry would most likely be competitive in the fields of light manufacturing, tourism, services, and high value-added agriculture. Once education and health improve, and commercialization follows the opening of markets, I have no doubt that certain sectors of the economy will surprise us with their competitiveness. Much of this remains unclear, but I do think most of Africa will not pass through a heavy industrialization phase because the resource base is insufficient, and the population locations are unfavorable. There are exceptions: parts of West Africa have a natural gas and oil base that could support modern chemical industry. However, that would probably not be possible in east or central Africa.

Question 3: What can reforms in eastern Europe in the past decade tell us about what to expect here in the near future?

Answer: Beginning in 1989, I investigated a number of eastern European and post-Soviet economies as they began the transition to capitalism. In the end, I had good sampling of a number of different countries: Poland, all the way to the west; Estonia, one of the small Baltic states; Slovenia, another very tiny country and formerly part of Yugoslavia; and Russia. I noticed different things. Poland, Estonia, and Slovenia completed the transition well (though not without some difficulties). This was made easier because they had important geographic advantages that helped them become trading partners with Western Europe. They easily attracted foreign direct investment. They also had some informal experience having a market economy. Many Polish workers used to work in Western Europe, migrating illegally back and forth, so in that sense they had experienced a market economy. Additionally, many Polish citizens had relatives in the United States, and that provided another connection. In my opinion, Poland, Estonia, and Slovenia completed the transition quite well. Poland became a member of the European Union and achieved significant economic growth, despite several obstacles. The first was the high level of unemployment in the old state-owned enterprises, and that problem has yet to be solved. The coal mines faced substantial shutdowns. The old, heavy industry that was based on cheap oil also suffered. The unemployment rate remained especially high. When I worked

in Russia, the situation was much worse and much harder than in the other countries bordering western Europe. Again, geography played a big role. It limited investments in industrial manufacturing far away from large markets. Imagine Shenzen trying to compete with Shanghai. Many companies prefer to stop at the border; they prefer to trade with coastal nations. They have no incentive to go another thousand kilometers into the interior, and that made Russia's transition to the free market much harder. Furthermore, we should also understand an important difference between Russia and China in terms of their transformations. The structure of Russia and Eastern Europe differed completely from that of China. When China started its transformation, the economy broke down to roughly 70% agricultural and 30% non-agricultural, with 80% of the population living in rural areas and 20% living in urban areas. Russia started its transformation with a 70% urban population and a 20% rural population. Furthermore, state enterprise dominated nearly 99% of the Russian economy at the time of independence. Imagine if the entire Chinese economy were state-owned in 1978. I consider that a critical difference, considering how poorly state-owned enterprises perform. While only about 20% of the Chinese labor force worked in state-owned enterprises in China, roughly 99% of Russians did so. That was the biggest difference. One was gradual; the other was rapid. In Russia and Eastern Europe, industrialization had progressed to later stages, and most of that industry was both inefficient and consumed energy at uncompetitive levels. In China, there was less industry to start with. But then there was also a political element. The United States gave a lot of help to certain countries, but not to all those that needed financial help and debt cancellation. Geopolitically, the United States favored supporting Poland. Poland became a member of the NATO military alliance. On the other hand, the United States was not interested in helping Russia, even though it made economic sense to help Russia. Central Asia, meanwhile, struggles with its remote location. For example, Ulan Bator in Mongolia is five thousands miles from Europe, so foreign enterprise has little interest in investing there. This is more of a problem than the soundness of Mongolia's economic policy. Economies that are far from major markets face extraordinary challenges. I advised eight countries undergoing transformations at similar times; they all reached different outcomes. My advice had little impact compared to the influences of geography, geopolitics, and economic structure. These were at least as important in determining outcomes as economic policies. We must not interpret economic development as merely the outcome of policy without understanding the other forces at work.